

**CLAIMS**

1. A process for modifying an unmodified clay, in particular a montmorillonite type clay, characterized in that the clay is intimately mixed with an organomodifier selected from quaternary ammonium salts, sulphonium salts, phosphonium salts,  
5 siliconated ammonium compounds, highly fluorinated ammonium compounds, precursors of said salts and mixtures of at least two of said compounds, in the presence of carbon dioxide (CO<sub>2</sub>) under pressure.
2. A process according to claim 1, characterized in that the CO<sub>2</sub> is in the supercritical state.
- 10 3. A process according to claim 1 or claim 2, characterized in that the clay and the organomodifier are intimately mixed before being brought into contact with CO<sub>2</sub> under pressure.
4. A process according to any one of claims 1 to 3, characterized in that the quaternary ammonium salt employed is an alkylammonium salt.
- 15 5. A process according to claim 4, characterized in that the alkylammonium salt is selected from the group comprising tetraethylammonium chloride, tetrabutylammonium hydrogen sulphate, didodecyldimethylammonium bromide and mixtures thereof.
6. A process according to any one of claims 1 to 3, characterized in that the siliconated  
20 ammonium compound used is a modified poly(dimethylsiloxane).
7. A process according to any one of claims 1 to 3, characterized in that the highly fluorinated ammonium compound used is tetrahydroperfluorooctyltriethylammonium iodide.
8. A process according to any one of claims 1 to 3, characterized in that the quaternary  
25 ammonium compound precursors are an amine and an alkyl halide.

9. A process according to any one of claims 1 to 8, characterized in that the CO<sub>2</sub> is at a pressure of 50 to 300 bars and at a temperature of 40°C to 50°C, advantageously about 40°C.
10. A biodegradable polyester foam prepared in the presence of an organomodified clay using the process according to any one of claims 1 to 9, having a homogeneous substantially regular, fine and closed cellular structure.
11. Use of a foam according to claim 10 and/or, prepared in the presence of an organomodified clay using the process according to any one of claims 1 to 9, for the manufacture of exterior coatings, drinks and fast food packaging, bottles, disposable cutlery, thermoformed articles, fibres, films, mixtures with starch, bioresorbable medical implants, agricultural transplantation pots, plant labels and fixings, meditrays, biomaterials and re-absorbable patches.